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Patent 32895

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	)	Group Art Unit 2613
HOLLAND et al	)	Examiner Christiansen
Serial No. 08/066,996	)	March 21, 1995
Filed: May 24, 1993	)	
For: METHOD AND APPARATUS FOR IMPROVED SCANNING OF FILM	)	

APPEAL BRIEF

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Applicant submits this Appeal Brief in accordance with 37 C.F.R. § 1.192.

I. STATUS OF THE CLAIMS

Claims 1-20 are appealed, each of those claims having been included in the original application. Each of these claims stands rejected.

CERTIFICATE OF MAILING

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, D.C., 20231 with sufficient postage as **EXPRESS MAIL NO. TB694822766US.**

Date: March 21, 1995 Denise N. Doss (Name of Person Mailing) Denise N. Doss (Signature)

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II. SUMMARY OF THE INVENTION

This invention relates to methods and apparatus for the conversion of images stored on motion picture film into an electronic format. A telecine is ordinarily used to scan the film in a raster pattern utilizing a flying spot scanner. The image intensity information from the film is converted by a photocell and ultimately converted to a video output signal. Current television display formats utilize an interlaced display, that is, one in which the first, third, fifth and so on, scans from the raster are used in a first field, and the second, fourth, sixth and so on, scans from the raster are used in a second field.

This invention is particularly useful in connection with conversion of motion pictures which are shot in cinemascope format (having an aspect ratio of 2.35:1) which generates an image in the format utilized for a theater based projection of the motion picture film. Ordinarily, when the cinemascope film is shot, a special 2:1 anamorphic lens is used to compress the image onto conventional sized film. When the film image is projected through a proper lens, the image is reexpanded to the correct proportions (see Col. 2, lines 12-25).

When cinemascope film is to be scanned in a telecine to generate a video signal, such as one which may be broadcast for television purposes, some compensation must be made for the compressed nature of the anamorphic image. One of the prior art approaches to effect this modification has been to double the vertical raster height flying spot scanner (see Col. 3, lines 4-6). Thus, while the original anamorphic lens causes the image to be recorded on film

compressed to half its proper width,[1] the prior art solution solves the format problem by scanning the image at larger intervals such that the image is returned to its proper size.

The prior art approaches have suffered from long-standing and vexing problems in the use of this technique and apparatus. The first problem is that of generation of a moire pattern, that is, the type of image often seen when two geometrically regular patterns (as when two sets of parallel lines are superimposed, especially at a small acute angle) may show up on the video image. This is especially pronounced where numerous horizontal lines are shown in the image, such as when the image contains bleachers, car grills or certain fabrics (Col. 3, line 22-35). Yet other problems resulting from this technique are serious flicker problems and a visible degradation of image quality resulting from the wider scanning approach (see page 3, line 36 through page 4, line 14). No satisfactory solution has previously been proposed.

Applicant's method and apparatus overcomes these limitations of the prior art. For simplicity, Applicant's invention will be described as applied to the scanning of a film recorded with a 2:1 anamorphic lens. Since the image is half as wide[2] for a properly sized image, the image is scanned at a relatively high rate and that information is stored in memory. The video output is generated by taking a scan line and combining it with one or more adjacent scan lines to generate a video output signal. The next video output signal is then formed by combining a line, other than the nearest neighbor of the first scan line

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[1] This may alternatively be considered to having the image stretched to twice its proper height or length.

[2] This may alternatively be considered twice as tall as required for the width.

utilized. Preferably, the combined lines are subject to weighting, so as to optimize the quality of the resultant image. In this way, an anamorphic image is converted to a normal image for broadcast, while substantially reducing the problems of the prior art.

III. ISSUES

The sole issue on appeal is whether the Examiner's rejection of Claims 1-20 under 35 U.S.C. § 103 as being unpatentable over Poetsch (U.S. Patent No. 4,312,017) in view of Diermann et al (U.S. Patent No. 4,270,150) must be reversed.

IV. GROUPING OF THE CLAIMS

For purposes of this appeal, the claims stand or fall together.

V. ARGUMENT

A. Summary of the Argument

1. Applicant's Argument Consists of Three Main Points, The Board's Finding in Applicant's Favor on Any One of Which Mandates Reversal of the Rejection

First, the Examiner misapprehends the teaching of the primary reference (Poetsch), which when properly understood, wholly fails to meet numerous of Applicant's critical claim elements. Proper understanding of the structure and operation of the Poetsch reference compels a reversal of the rejection.

Second, the secondary reference (Diermann) is not within the field of endeavor of the inventors, and accordingly, not proper prior art on this rejection. This reference was found by the Examiner by using hindsight reconstruction against the Applicant in violation of the law. See, e.g., In re Oetiker, 977 F.2d 1443, 1447 (Fed. Cir. 1992). The Diermann reference is directed to a wholly different task, namely the task of so-called comb filtering to separate out color information (chrominance and luminance signals), and not to the image quality enhancement function of Applicant's invention. When the Diermann reference is properly excluded from consideration, the Examiner's rejection must be reversed.

Third, there is absolutely no teaching or suggestion in either of the references to combine those two references. Absent such a teaching or suggestion, the combination cannot properly be made, and the rejection for obviousness must be reversed. Again, the Examiner is using the teachings of Applicant against itself, which the Examiner may not properly do.

Each of these items will be addressed in turn.

B. The Examiner Misconstrues Poetsch; Poetsch Fails to Meet Critical Claim Limitations

As properly understood, Poetsch fails to disclose key aspects of Applicant's invention, and indeed, teaches away from the. The Poetsch reference describes a technique for "compensating for distortion of film exposed through anamorphic lenses" (see, Abstract at 18 and 19). While the Examiner admits that "Poetsch does not disclose the specifics of the processing of the video data according to the steps claimed in the instant invention" (Final

Office Action at page 5, lines 2-4), the true extent of the difference can only be appreciated based upon a complete understanding of the reference.

Poetsch discloses a technique in which the anamorphic image is in essence scanned at the standard anamorphic rate. While the image is scanned at a high rate, only half of the scanned information is stored. The specification clearly discloses that the information for every other scan line is written over. For example, as stated at Column 6, starting at line 30:

> "The scanning arrangement permits a simple way of so reproducing cinemascope film without using an anamorphic lens while scanning the full width of the image. This is achieved by so arranging the address in which the signals are stored upon scanning that, when the signals are read out from the memory, the image to be reproduced will be reduced by half with respect to the height of the TV screen. Switches 26, 27 (Fig. 1), when placed in their upper position, provide a division by two; consequently, the line counter will receive only every other count pulse and only every other line which is scanned receives a new address. The content of two lines is thus recorded in the same address in the memory. Consequently, the image content of the overall frame is reduced to half the number of lines for reproduction of the scene on the TV screen." (Column 6, lines 30-45).

The essence of Applicant's disagreement with the Examiner's reading of Poetsch is distilled at paragraph 3 of the Final Rejection. It is Applicant's view that half of the scanned

information is not ultimately stored in the memory for use, in that since two sequential scans are given the same memory address, only the second of the scans remains stored for ultimate use. It is the Examiner's view that "the image content of two lines is recorded in the same address such that the image content of the overall frame is reduced to half the number of lines. Thus, the image content is not reduced by half, but rather is stored in half as many lines (Column 6, lines 41-45)."

First, Applicant suggests that a plain reading of the very text cited by the Examiner directly controverts the Examiner's statement. The portion set out at Column 6, lines 41-45 states:

> "The content of two lines is thus recorded in the same address in the memory. Consequently, the image content of the overall frame is reduced to half the number of lines for reproduction of the scene on the TV screen."

A more detailed understanding of why the system disclosed in Poetsch results in storage of every other line for an anamorphic conversion can be understood with respect to Fig. 1. A disk 21 has circumferential markers which can be sensed by a transducer 23. (Column 3, lines 39-42). This system provides a number of pulses as input to switch 26 depending on whether NTSC or PAL standard is employed. (Column 4, lines 3-9). For example, if the PAL standard is employed, then 625 pulses are provided to switch 26. When the scanning is for an anamorphic image, the input pulses (e.g., 625 per frame) are divided in half by placing the switches 26, 27 in the upper position (Column 6, lines 37-39). The results of this is that "The line counter (25) will receive only every other count pulse and

only every other line which is scanned receives a new address." (Column 6, lines 39-41). 'The output of the line counter goes via switch 28.[3/] The output of the line counter 25 is provided to the memory address control unit 31. Central to the operation of the system is that:

> "The counter state which obtains during the scanning of a line forms the address of the respective line." (Col. 4, lines 12-14).

In the anamorphic scanning mode, the same address is generated by the memory address control unit 31 for two film scans as provided to memory from the video processor 14 through the A to D converter 15. Accordingly, while the first scan may be written to memory, the second scan is written to memory at exactly the same address, and writes over the preceding information. Thus, while the image may be scanned, the information is not stored for later use.

Thus, by the Examiner's own admission, Poetsch fails to meet the claim limitations which relate to the way in which the information is processed (i.e., combined between lines) and as properly read, fails to disclose the step of storing the information from the scan for later combination. Poetsch merely discloses the step of scanning the image at a non-anamorphic rate, nothing more as impacts the claims.

[3/] The operation of switch 28 is not believed to be central to the patentability questions. The operation of the switch 28 is described in Column 4, generally from line 14 through line 39. In the lower position, a fixed number equal to approximately half of the number of scan lines (e.g., 312 for the PAL standard of 626 lines per frame). This serves to arrange the alternate scan lines of the image to separate sections of the memory, resulting in collection of the interlace images for read out (See Col. 4, lines 14-23). When the switch 28 is in the up position, the signals of the scan lines would be sequentially recorded in memory, and the interlace readout occurs by reading alternate lines from the memory. (See Col. 4, lines 30-35).

C. It is Legal Error to Rely Upon the Applicant's Teaching in Formulating the Rejection Against Him

It is fundamental patent law that the Examiner may not use the teachings of an applicant against him, first to find prior art in an area outside of the Applicant's endeavor, and second, to combine references without an express teaching to do so. As stated in In re Oetiker, 977 F.2d 1443 (Fed. Cir. 1992):

> "In order to rely on a reference as a basis for rejection of the applicant's invention, the reference must either be in the field of the applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. (Citation) Patent examination is necessarily conducted by hindsight, with complete knowledge of the applicant's invention, and the courts have recognized the subjective aspects of determining whether an inventor would reasonably be motivated to go to the field in which the examiner found the reference, in order to solve the problem confronting the inventor. We have reminded ourselves and the PTO that it is necessary to consider "the reality of the circumstances" (Citation) - in other words, common sense - in deciding in which fields a person or ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor.
>
> It has not been shown that a person of ordinary skill, seeking to solve a problem of fastening a hose clamp, would reasonably be expected or motivated

> to look to fasteners for garments. The combination of elements from non-analogous sources, in a manner that reconstructs the applicant's invention only with the benefit of hindsight, is insufficient to present a prima facie case of obviousness. There must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill int he field of the invention would make the combination. That knowledge can no come from the applicant's invention itself. (Citation)." 977 F.2d at 1447.

The classic consideration of the use of a non-analogous reference is whether first, the reference is within the field of the inventors endeavor, and second, if not, whether a person of ordinary skill would reasonably have consulted that reference and applied its teachings in seeking a solution to the problem that the inventor was attempting to solve. See, e.g., Heidelberger Druckmaschinen v. Hantscho Commerical, 21 F.3d 1068, 1071 (Fed. Cir. 1994).

As will be explained below, the Examiner has erred first by attempting to utilize the Diermann reference against Applicants, when it was the Applicant's own disclosure which has been used as the road map to find the reference. This alone precludes use of the Diermann reference. Second, and most critical to the Examiner's analysis, is that there is simply no teaching or suggestion in the art to modify the Poetsch reference and then to graft on portions of the Diermann reference.

D. The Diermann Reference May Not Be Utilized Against Applicants

The Examiner repeatedly admits in his action that "Poetsch does not disclose the specifics of the processing of the video data according to the steps claimed in the instant invention". (See Final Office Action, page 5, lines 2-4, page 9, lines 5 and 6, page 10, lines 21-23). Not only does Poetsch teach away from Applicant's invention in that it teaches the elimination of half of the data, and does not teach the steps of the combining of the various scan lines as disclosed and taught by Applicant. Faced with this deficiency, the Examiner utilized Applicant's disclosure to search the prior art for a reference which combined adjacent lines of video. However, in selecting the Diermann reference, the Examiner selected a reference directed to "comb filters" which are utilized to separate chrominance and luminance information from previously recorded video signals. Clearly, the conversion of signals having color information from one format to the other is not directly within the field of the inventor's endeavor. Neither is this reference "non-analogous" art since there is nothing to suggest that one of ordinary skill would reasonably have consulted Diermann and applied their teaching in seeking a solution to the problem the inventor was attempting to solve. As clearly stated in the field of the invention, "this invention relates to the conversion of images from film to an electronic format". (Application at page 1, lines 2-3). This invention was not directed to comb filters or any aspect of color signal format conversion.[4/]

[4/] Even if Diermann were a reference useable against Applicant, the successive video lines which Diermann combines are not separate scan lines of an image, but rather, comprise the color information (chrominance and luminance) for a given line of information from the film.

It is inescapable that the Examiner has utilized the teachings of Applicant against him, which he may not do, under well settled law.

E. There is Simply No Suggestion to Combine the Two References

Assuming that Diermann may be utilizable against Applicant, there is simply no teaching or suggestion to combine Poetsch and Diermann. Poetsch is the only reference cited by the Examiner dealing with the telecine scanning of an anamorphic image. Poetsch teaches a full and complete method for generating a non-anamorphic image. The Examiner wishes to ignore parts of the teaching of Poetsch, suggesting that we should not completely as Poetsch teaches. Rather, the Examiner wishes to graft on the Diermann reference. However, this is no teaching or suggestion either to eliminate certain of the teachings of Poetsch nor to graft on those teachings of Diermann.

The very structure of the Examiner's rejection confirms the lack of express teaching or suggestion to combine these references. At paragraph 4 of the Final Rejection, the Examiner first discusses the Poetsch reference, concluding in the admission that "Poetsch does not disclose the specifics of the processing of the video data according to the steps claimed in the instant application." The Examiner then discusses Diermann. Without any reference to the express teaching in either of these references suggesting to modify Poetsch and to combine it with Diermann, the Examiner leaps to the conclusion of obviousness as follows:

> "Thus it is obvious that for subsequent video output lines the combine of scan lines takes place such that a subsequent scan line will differ from the previous scan line by two end scan lines, where n=1 for progressive output or 2 for an interlaced output. . . Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Diermann et al for the combining of scan lines in the system of Poetsch to correct and/or enhance the video image data derived from scanning a film image." (Final Office Action at page 5, line 9 to page 6, line 1).

This is classic conclusion language without the required express citation of the "reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge cannot come from the Applicant's invention itself." In re Oetiker, 977 F.2d at 1447.

The Office Action fails to state a prima facie case of obviousness. For this reason alone, the rejection cannot stand. Since the Examiner has failed to establish a prima facie case of obviousness, Applicant's are entitled to issuance of a patent to its invention. In re Fritsch, 972 F.2d 1260, 1265 (Fed. Cir. 1992).

VI. CONCLUSION

For the foregoing reasons, the Examiner's rejection under 35 U.S.C. § 103 on Poetsch in view of Diermann should be reversed, and this case allowed to issue.

Respectfully submitted,

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CLAIMS

1. A method for converting a two-to-one anamorphic film image into a video output signal having multiple video output lines, comprising the steps of:

(a) scanning the film image in a progressive scan, each scan comprising a scan line, using the nonanamorphic spacing between scan lines,

(b) storing the scan lines in memory,

(c) forming a video output line, each one of the video output lines being formed according to the following steps:

(1) for the first video output line, combining a first scan line with the two scan lines adjacent to the first scan line,

(2) for subsequent video output lines, combining a subsequent scan line differing from the previous scan line by 2n scan lines, where n equals 1 for a progressive output or 2 for an interlaced output, with the adjacent scan lines to said subsequent scan line, and

(3) repeating the preceding step (c)(2) until the image is formed into the video output signal.

2. The method of claim 1 for converting an anamorphic film image into a video output signal wherein step (c)(1) and (c)(2) the[5/] combining includes weighting of the scan lines.

3. The method of claim 2 wherein the weighting of the scan lines is substantially equal.

4. The method of claim 2 wherein the weighting is unequal.

5. The method of claim 2 wherein the weighting is substantially 1/2 for the scan line and substantially 1/4 for each of the two adjacent lines.

6. The method of claim 1 wherein the video output is interlaced.

7. The method of claim 6 wherein a first and second interlaced field are formed.

8. The method of claim 7 wherein the first scan line of the second interlaced field is 2 lines offset from the first scan[6/] line in the first field.

[5/] A Rule 116 Amendment is being filed subsequently herewith amending this claim by changing "be" to "the".

[6/] A Rule 116 Amendment is being filed subsequently herewith amending this claim by changing "scanned" to "scan".

9. A method for scanning film comprising the steps of:

(a) scanning the film in m-scan lines of a progressive raster scan,

(b) generating a video output consisting of n active scan lines wherein m is at least twice n, by the following steps:

(1) combining a first main scan line with one or more other nearby scan lines to form a first video output line, and

(2) forming a next video output line by combining a second main scan line with one or more yet another nearby scan lines, where the first main scan line and second main scan line are not adjacent, and

(3) repeating the preceding step.

10. The method of claim 9 wherein the said another scan lines are adjacent to said main scan lines.

11. The method of claim 10 wherein the two adjacent lines to a main scan line are combined.

12. The method of claim 9 wherein the combined scan lines are weighted.

13. The method of claim 12 wherein the scan lines are unequally weighted.

14. The method of claim 12 wherein the scan lines are equally weighted.

15. A system for forming a video output signal from anamorphic film comprising:

(a) a raster scan generator system for scanning film at a non-anamorphic rate or greater,

(b) a frame store having an input for receiving a digital image signal, an output for outputing multiple digital video signals, and an input for receiving an address,

(c) an address generator for selecting nonadjacent scans,

(d) means for weighting the output from the frame store, and

(e) summing means for combining the output of the weighing means, the output of the summing means forming the video output signal.

16. The apparatus of claim 15 wherein the frame store is random access memory.

17. The apparatus of claim 15 wherein the frame store is DRAM.

18. The apparatus of claim 15 wherein the frame store is VRAM.

19. The apparatus of claim 15 further including a telecine for providing the digital image signal to the input of the frame store.

20. The apparatus of claim 15 wherein the frame store comprises three separate frame stores.